

Amendments to the Drawing:

The attached sheet of drawing includes changes to Fig. 2. This sheet, which includes Fig. 2, replaces the original sheet including Fig. 2. In Figure 2, reference numerals 15 and 16 are shown.

Attachment: Replacement Sheet
 Annotated Sheet Showing Changes

REMARKS/ARGUMENTS

Reconsideration of this application in light of the above amendments and following comments is courteously solicited.

Applicants present for examination new claims 12-17. Claims 12-17 have been drafted so as to comply with all the formal requirements of 35 U.S.C. 112, first and second paragraph.

Applicants have amended the specification on Page 4, paragraph 20 to change the reference from receiving head to machining head. The reference to receiving head was an inadvertent typographical error which has now been corrected.

Applicants submit concurrently herewith a replacement sheet, specifically a new Figure 2 showing reference numerals 15 and 16. The examiner is requested to approve these drawing corrections.

The remaining issues for examination deal with the rejections of the previously submitted claims over either U.S. '609 of SE '621. As to how these rejections apply to the newly submitted claims 12-17, they are respectfully traversed.

The present invention is drawn to a method for joining two workpieces. New independent claim 12 sets forth with specificity the method of the present invention. The method comprises providing a laser source for emitting a laser beam and providing an upper workpiece comprising a transparent material and a lower workpiece comprising a material absorbent to the laser beam. Contact surfaces of the workpieces are melted under the effect of the laser beam and joined to one another under pressure and subsequent cooling. A machining head is provided and has a translucent pressure element wherein the translucent pressure element is pressed onto the upper workpiece for mechanical compression of the workpieces and a guiding of the laser beam both being accomplished simultaneously. The prior

art references fail to teach, disclose, suggest or render obvious the claimed subject matter of independent claim 12 and dependent claims 13-17.

U.S. 4,636,609 does not teach a method as claimed wherein the mechanical compressing of the workpieces and the guiding of the laser beam is accomplished simultaneously by a translucent pressure element of a machining head, which is pressed on the upper workpiece. The '609 machining head fails to disclose a rotary pressure element transparent to a laser beam, which allows for movement of the machining head along a line or contour to be welded while touching and compressing the workpieces.

SE 51 0621 does not disclose a linear laser beam, which is directed to the polymer materials in the contact area in which the polymer materials are pressed together. The apparatus disclosed in this prior art publication shows in figure 2 a set of laser beams L1-L3, which are directed through openings 7 to the upper material 11, which is melted according to the depth of penetration before the materials are pressed together by the rollers 2 and 3. The roller 3 comprises ribs 8, 9, and 10 with the openings 7. After melting of the material 11, 12 by the respective laser beam through the opening 7, the material is not further exposed to the laser beam but pressed by the ribs. With this apparatus a pattern is welded.

DE 43 19 742 teaches passing a laser beam through a transparent ball to the area to be welded, wherein the ball acts as a pressure course and allows the parts to be simultaneously pressed and heated. The disclosed apparatus shows a glass fiber waveguide, which directs the laser beam to the transparent ball. The laser beam can not be formed or focused by the apparatus, because the apparatus shows no means for forming the beam.

JP 58163587 discloses a laser welding apparatus comprising

a processing head with focusing means that focus a laser beam and directs it through a gap between two rollers, wherein the rollers exert pressure on the weld through pressing devices. The rollers are held in guides provided at the forward end in the leg part of the processing head to permit vertical sliding of bearings supporting the rollers, the rollers being suspended in the leg part by means of a spring. This is totally different from the disclosed invention.

The method of the invention as claimed uses, for welding plastic, a welding apparatus with at least one rotary pressure element at the leg part of the processing head, which is transparent for a laser beam, compressing the workpieces during welding and a lens system integrated in the processing head in order to focus and direct the laser beam through the transparent pressure element to the workpieces to be welded. For welding the machining head with its pressure element can be moved along a line or a contour while touching and pressing the workpieces.

In light of the foregoing, it is submitted that all of the claims as pending patentably define over the art of record and an early indication of same is respectfully requested.


An earnest and thorough attempt has been made by the undersigned to resolve the outstanding issues in this case and place same in condition for allowance. If the Examiner has any questions or feels that a telephone or personal interview would be helpful in resolving any outstanding issues which remain in this application after consideration of this amendment, the Examiner is courteously invited to telephone the undersigned and the same would be gratefully appreciated.

It is submitted that the claims as amended herein patentably define over the art relied on by the Examiner and early allowance of same is courteously solicited.

If any fees are required in connection with this case, it

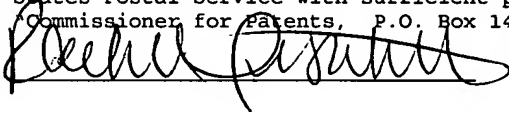
is respectfully requested that they be charged to Deposit
Account No. 02-0184.

Respectfully submitted,
Jie-Wei Chen et al.


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I, Rachel Piscitelli, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on January 27, 2006.



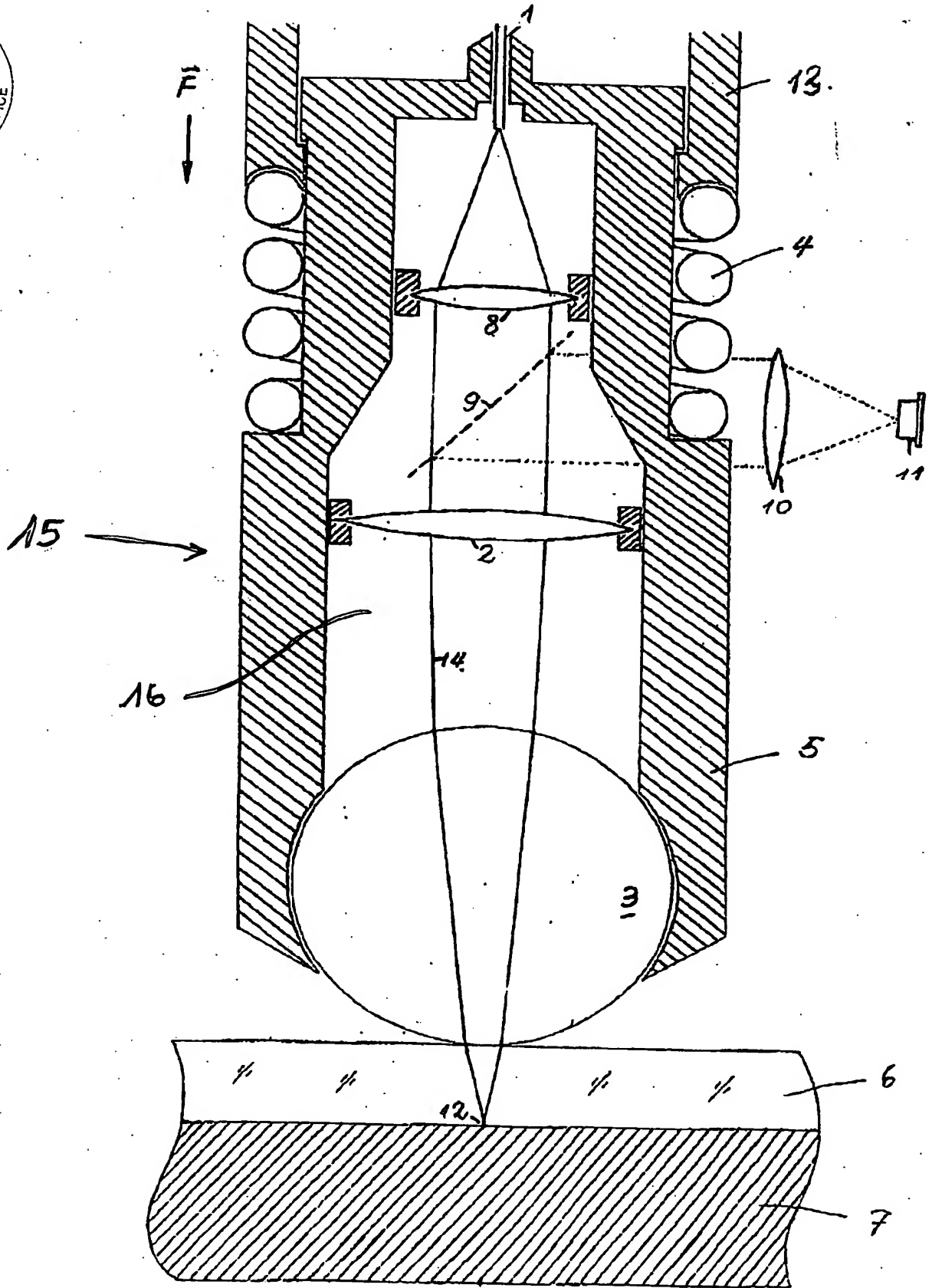


Fig. 2.